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Risk assessment teams that consider possible overtopping of embankment dams nearly always must attempt to answer the question, "If this dam is overtopped by x feet of water for y hours, will the dam fail?" Techniques for answering this question are limited and have a great deal of uncertainty. Dewey and Oaks (1990, Draft TM MISC-3620-1) and Dewey and Gillette (1993, "Prediction of Embankment Dam Breaching for Hazard Assessment," ASCE Specialty Conference on Geotechnical Practice in Dam Rehabilitation) presented a practical procedure for evaluating the possibility of embankment dam breaching due to overtopping. This technique is in need of updating to reflect new knowledge about the erosion resistance of large riprap subjected to overtopping flows.

The objective of the project was to develop an improved procedure for analyzing the breach initiation phase of embankment dam failure due to overtopping flows. The new procedure was to be based on the original Dewey, Oaks, and Gillette procedure, updated to include the results of recent research by Reclamation and the Agricultural Research Service.
A related research effort is ongoing at the Agricultural Research Service's laboratory in Stillwater, Oklahoma. There they are performing large-scale embankment breach tests in which homogeneous embankments with and without vegetative cover on the downstream slopes are being tested to failure. Tests were carried out this year on three 7.5-ft high embankments. Materials were a 3-4 percent clay SM material, a 25 percent clay CL material, and an 8-10 percent clay SM material. Details of the test on the 8-10 percent clay embankment are contained in WRRL travel report TR-99-26 (Oct. 7, 1999).

Water Resources Research Laboratory
Agricultural Research Service (Plant Science and Water Conservation Research Lab, Stillwater, Oklahoma)
Reclamation Dam Safety Program-Project ER458.

Wahl, Tony L. Embankment Dam Breach Tests at Agricultural Research Service Hydraulics Laboratory - Stillwater, Oklahoma. Travel Report TR-99-26. Water Resources Research Laboratory, Denver.